



Philosophical Transactions

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PHILOSOPHICAL TRANSACTIONS.

Novemb. 20, 1671.

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Observations, made by Mr. Hook, both of the Solar Spots lately discover'd, and the Eclipse of the Moon of Sept. 8. 1671. Some Additions of M. Lister to his former Communications about Vegetable Excrescencies, and Ichneumon Wasps, together with an Inquiry concerning Tarantula's. Predictions of the Visible Appulses of the Moon to, and her near Transits by certain Fixt Stars for A. 1672. An Account of some Books: I. SHEEPS BOWWEN BESTIER, that is, NAVAL ARCHITECTURE and CONDUCT, in Low-Dutch, by N. Witsen. II. RECHERCHES & OBSERVATIONS sur les VIPERES, par Monf. Bourdelot. III. Admirandorum FOSSILIVM, quæ in tractu Hildesheimensi reperiuntur, Descriptio, à D. Frid. Lachmund. IV. De CATHARRHIS, A. R. Lower M. D. V. DELICIÆ PHYSICÆ Goth. Voigtii.

*Observations made by Mr. Hook, of some Spots in the Sun, return'd after they had pass'd over the Upper Hemisphere of the Sun which is hid from Us; according as was predicted *. * see Numb. 75. p. 2253.*

August 30. 1671. I saw a large Spot in the Center of the Sun's face about noon, but had not then time to make any more exact observation thereof.

Septemb. 1. at 3 a clock I saw the same Spot moved about a quarter of the Diameter of the Sun Westward, and it appeared of this form exactly, that is, it consisted of one greater and two lesser black Spots with a dusky cloud incompassing them: The Diameter of the whole Phænomenon was about $\frac{1}{72}$ of the Diameter of the Sun, and it was distant from the next adjoining limb, $\frac{15}{72}$ (that is, exactly one quarter) of the Diameter of the Sun. This I examined and measured several times, and found very exact.



So far He. To which we hope we shall be able to add, by another opportunity, what hath been further observed abroad, as well of the *second* progress of these Spots on the Sun's apparent disque, as of the continuation of their former motion thereon.

U u u

Observations

Observations made by the same, of the late Eclipse of the Moon, the 8th of September 1671. ft. vet,

Septemb. 8, 1671. H. 7. 27 $\frac{1}{2}$. I first observed the Moon Eclipsed when it began to be enlightened, the total darkness being already past: The shadow passed through the middle of the Spot called by *Hevelius* *M. Porphyrius*, half of the said Spot appearing without the shadow and the other half being darkened thereby.

H. 7. 49'. The shadow passed through the middle of *M. Sinai*, through the middle of the Eastermost of the three Lakes called *Mare Adriaticum*, and just touched the ridge of the *Appennine* Mountains.

H. 7. 54'. It passed the middle of the *J. Besbicus* in the *Propontis*.

H. 8. 0 $\frac{1}{2}$. It passed through the streights of the *Pontus Euxinus* at the Promontories *Acherusia* and *Arister*.

H. 8. 6 $\frac{1}{2}$. It touched the *Palus Mæotis*, which *Palus Mæotis* was then distant from the limb of the Moon next adjacent one third part of its shorter diameter or breadth.

H. 8. 17'. The shadow went off the body of the Moon upon the innermost limb-line of *Hevelius* his large chart of the Moon at the 29 division just without the *J. Major* of the *Caspian Sea*. The dusky *Penumbra* left not the limb of the Moon quite without some kind of darkness, till 8. 29'; at which time I found that side of the Moon, which the shadow last left, was full as light and clear as the other.

About four or five minutes after, the shadow was gone off, I perceived a faint representation of Colours upon that part of the body of the Moon, which was most affected with the *Penumbra* somewhat resembling the colours of a faint *Halo* about the Moon; this grew fainter and fainter, and after a few minutes was no more visible. It did not seem to be caused by any clouds or exhalations in the Air, the sky near the Moon being very clear, and the said colours not appearing any where, but upon the dusky part of its *Phasis*. Possibly it might be caused by the Refraction of the light from the Sun through the Atmosphere about the Earth.

LUNÆ ad FIXAS Appulsus Visibiles, nec non arctiores juxta eas Transitus, observabiles A. 1672: Prædicti, & ad Meridianum Latitudinemque Londini, è Tabulis Carolinis accuratè supputati à Joh. Flamstedio Derbienti-Anglo.

FIXARUM Nomina, Loca, Latitudines & Magnitudines, quibus vel corporales Appulsus vel propinquiores Transitus habet LUNA Anno 1672, de mente & placitis Auctoris Carolini, sunt;

Fixarum Nomina.		Loc.			Lat.	Magn.
		h.	m.	s.		
1	In Lino Australi & Lucidior. 3 ^{um} præcedens	9	34	48	2 11 Bor.	4
2	Media & lucida Pleiadum	8	25	19 48	4 0	3
3	2 ^a Bor. inter pedes II & Erichonium	II	23	34 48	4 6	4
4	Borea præcedentium in □ Cancr.	Ω	9	44 48	3 31	5
5	Asellus boreus	Ω	2	52 48	3 8	4
6	Cor Leonis, Regulus	Ω	25	12 48	0 26½	1
7	In sinistra axilla Leonis	♊	1	43 48	0 8	4
8	Media in pede Leonis	♊	16	52 48	0 33 Au.	4
9	Media sequens sub brach. sinistro ♊ infer.	♊	11	34 18	3 23	5
10	Australis trium in fronte m lucidior	m	28	19 48	5 22	3
11	Quæ Cor m sequitur ad Austrum	♋	6	48 48	5 50	4
12	Septentrionalis trium in ventre ♊	♊	8	13 48	3 1	5
13	Duarum lucidarum in Cauda præcedens	♊	17	9 48	2 26	3
14	Sequens	♊	18	55 48	2 23	3
15	Quæ ad Clunes Aquarii	♊	24	8 48	2 0	6
16	In effusione aquæ ♊ succedens Australis	♋	7	0 48	0 19	4

Anno 1672.

Januar. 4. post mediam noctem sequentem Luna teget stellam superioris Tabella 5^{am}, Asellum boreum, cujus sub illa

p.m.	h.	.	"	} Latit. * ^a }	Immers.	h.	m.	} Bor.				
Immerso	13.	33.	43.						} Luna in }	Emers.	10.	41.
Emerso	14.	32.	30.									
Mora	0.	58.	17.									

Januar. 27. *Sub Occasum Solis Pleiades assequitur; cujus phenomeni phaenomena tui succedunt ordine;*

			* à Centro Da. Lat.
p. m.	h. "		
3.	46. 48.	Occidentalis lucidior subripitur —	6. 34. Bor.
5.	2. 12.	Eadem eluclatur —	2. 35. B.
5.	4. 54.	Media & lucida subtegitur —	6. 22. Auf.
5.	48. 30.	Infima occidentali proxima abscond.	9. 13. A.
6.	0. 20	Sequens borealior absconditur —	15. 9. B.
6.	13. 0.	Orientalis superior occupatur —	14. 22. A.
6.	15. 30.	Media & lucida remittitur —	10. 15. A.

Occidentalem, borealiorem, & orientalium lucidiorum Luna, juxta numeros Carolinos, illibatas prateribit. Infime, sequentis Borealis, & Orientalis superioris obtectiones (facta modo de Schemate, è recentibus propriis Observationibus delineato, probabili aliquâ conjecturâ) disposui; quarum Emerfiones, haud multo (sperem) incommodo omissas, cælum sudum si fuerit, fidi Coelispices observare ne graventur, dum ipso hujus Asterismi stellæ iterum dimittior, quò accuratiora de Phenomenis futuris, Luna per eas transcurans, pronunciare possim.

Februar. 10. Post med. noctem sequentem, vel potius Febr. 11. mane, abscondet Luna Stellam 11^{am} Tabellæ; cujus erit horis diei 11^{ae} matutinis,

	h. "		
Sub-ingressus	3. 52. 39.	} * Lat. à Cen- tro Lune in	Sub-ingr. 7. 21. B.
Emerfio	4. 45. 39.		Emerf. 10. 12.
Mora sub D	0. 53. 0.		

Maii 2. Post med. noct. sequentem, vel Maii 3. mane, Luna eandem stellam rursus teget, quæ horis matutinis diei 3^{ae} habet

	h. "		
Obtectionem	2. 59. 29.	} * Lat. à Centro Da in	Ingr. 2. 6. B.
Retiectionem	4. 1. 46.		Exitu 1. 3.
Durat. sub Da	1. 2. 17.		

Junii 18. Sole ipso in meridie culminante, Luna Regulum seu Cor Ω , stellam Tabulæ 6^{om}, Austrino limbo occupabit: Quod quidem phenomenon ab plenam diei lucem inobservabile prorsus credideram, ac sanè ut tale omissem, mihi monnisset Clar. Oldenburgius, comperisse Dn. Hook, etiam Dinanos Luna ad Fixas majores appulsus, methodo ipsi exploratâ esse observabiles,

vabiles, taliumque Apparentiarum, si quando acciderent, pramonitiones identidem efflagitasset. Nactus igitur hoc Phenomenon (quo vel utilis, ut infra patebit è Synopsis, vel celebris à Luna nequit unquam obvenire,) Ingeniosissimo Micrographo hanc ejusdem pramonstrationem, gratitudinis ergò, dicatam habere, idque ipsi præ cæteris, qui observandi callent methodum, observandum committere velim.

Reguli seu Basilisci dant Tabula, p.m.

Occultationem	0. 11. 0. } Lat. * à Centro	} Occult. 15. 48. Aust.
Retentionem	0. 20. 0. } D ^a in	
Moram sub D	0. 9. 0.	

Cordis ad Centrum α proxima appropinquatio est 15'. 39" ; Lunæ senⁱ diameter apparens modo 15'. 49", ita ut 10 scrup. secundos duntaxat à limbo Lune, mediâ Eclipsi, dissita futura sit Stella : Unde, si aliqua obveniat Cali a Numeris discrepantia, facillimè id ipsum Observatori innotescet.

Julii 2. Luna in \approx 24 gr. Stellam teget 15^{am} Tabulæ nostræ, cujus videatur sub Luna h.

Incurfus	12. 49. 19. } Lat. * à Centro	} Incurfu 0. 57. B.
Exitus	13. 59. 26. } D ^a in	
Mora	1. 17. 7.	

Julii 23. Luna rursus appellit ad Stellam 11^{am}, quam abscindet h. 10^h 12'. 26" p.m ; lat. * tum à centro D^a 10'. 3". B ; prius tamen sub horizonte mergetur quàm liberet stellam ; cujus propterea Emergio Americanis conspicienda nobis expectanda non est.

Julii 28. Post med. noct. sequentem, sed Jul. 29 mane, Luna in \approx 8 gr. abscondet Stellam Tabulæ 12^{am}, cujus erit horis matutinis, dici sc. 29, cum Luna h.

Congressus,	1. 29. 6. manè	} Lat. * à Centro	} Sub-ingr. 8. 40. B.
Sejunctio à D,	2. 32. 4.		
Mora sub D,	1. 2. 58.		

Julii 29. Nondum elapsis horis 20. à priori Occultatione, Luna in \approx 18 gr. subripit Stellam Tabulæ 14^{am} ; cujus erit h.

Sub-ingressus	8. 32. 26. } Lat. * à Centro	} Ingr. 0. 25. Aust.
Emergio	9. 39. 0. } D ^a in	
Mora sub D	1. 6. 43.	

Augusti 12. Vesperis Solem in \approx 0. 11. 44. Luna teget : Eclipsis erit h.

p.m. Initium	5. 30. 16. }	} Digiti, summâ Eclipsi
Max. Obscur.	6. 6. 47. }	
Appar. Syzygion	6. 11. 39. }	
Finis	6. 43. 20. }	
Duratio	1. 13. 4. }	deficientes 3. 8 $\frac{1}{2}$.

Octob. 23. *Vesperis Luna in V 9, jungitur Stella 1^a; cuius crit*
h.

<i>Occultatio</i>	8. 19. 23	{ <i>Lat. *^a à Centro</i>	<i>Ingr.</i>	2. 0.	
<i>Refectio</i>	9. 32. 43	{ <i>Luna in</i>	{ <i>Refect.</i>	8. 39.	<i>Aust.</i>
<i>Mora sub D</i>	1. 13. 20.				

Octob. 23. *Vesperis Luna in II 24. gr. occultabit Stellam Tabulæ 3^{am}, cuius*
sub Lunam

<i>Subingressus</i>	9. 21. 8.	{ <i>Lat. *^a à Centro</i>	{ <i>Subing.</i>	5. 52.	
<i>Egressus</i>	10. 25. 0.	{ <i>Luna in</i>	{ <i>Egress.</i>	5. 15.	<i>B.</i>
<i>Mora sub D</i>	1. 3. 52.				

Novemb. 17. *Luna vesperi in X 7. gr. conteget Stellam Tabulæ 16^{am}, quæ*
h.

<i>Abfconder</i>	6. 25. 42.	{ <i>Lat. *^a à Centro</i>	{ <i>Occult.</i>	6. 15.	
<i>Remittet</i>	7. 23. 25.	{ <i>Luna in</i>	{ <i>Refect.</i>	12. 42.	<i>Aust.</i>
<i>Retinet</i>	0. 57. 43.				

Decemb. 22. *Luna in II 24. gr. cum Stella Tabulæ 3^a; cuius cum*
Luna

<i>Congressus</i>	7. 28. 33.	{ <i>Lat. *^a à Centro</i>	{ <i>Congr.</i>	0. 5.	
<i>Sejunctio</i>	8. 31. 0.	{ <i>Luna in</i>	{ <i>Sejunct.</i>	2. 20.	<i>Aust.</i>
<i>Mora sub ea</i>	1. 2. 27.				

Preterea Februar. 23. paulò ante mediam noctem;
Augusti 5. post sequentem mediam noctem;
Octobr. 26. ipsa mediâ nocte;

Et Decemb. 20. post mediam noctem; Luna aliquas è Pleiadibus
coopriet; de quibus tamen Occultationibus certi aliquid constituere in præ-
sentiariis minimè audeo; Eo negotio in aliud tempus (quando scil. de earum
distantiis & locis, quorum jam observandorum satago, res certa mihi inno-
tuerit; quod brevi fore spes est,) dilato. Interea Lunæ juxta Fixas aliquas
Transitus arctiores hic adjungam, quas vigiliis nostris haud minus dignas, ac
Occultationes, arbitror.

H.

Januar. 4—10. 19. 39.	17. 47. in conf. * ^a 4 ^a cum Lat. 23. 58. <i>Aust.</i>
7—18. 34. 23.	21. 3. in ant. * ^a 7 ^a cum Lat. 17. 57. <i>Aust.</i>
Februar. 25—12. 13. 22.	14. 20. in ant. * ^a 3 ^a cum Lat. 25. 59. <i>Bor.</i>
Martii 2—13. 5. 30.	4. 11. in ant. * ^a 8 ^a cum Lat. 22. 35. <i>Aust.</i>
Martii 4—10 51. 11.	11. 48. in conf. * ^a 9 ^a cum Lat. 23. 4. <i>Bor.</i>
26—13. 33. 11.	14. 26. in conf. * ^a 5 ^a cum Lat. 28. 20. <i>Aust.</i>
Augusti 25—14. 47. 23.	23. 52. in ant. * ^a 13 ^a cum Lat. 11. 33. <i>Aust.</i>
Septemb. 8—16. 6. 7.	8. 12. in conf. * ^a 7 ^a cum Lat. 26. 0. <i>Aust.</i>
Octob. 19—7. 37. 37.	30. 30. in ant. * ^a 13 ^a cum Lat. 14. 20. <i>Bor.</i>
Novemb. 1—17. 44. 7.	13. 45. in conf. * ^a 6 ^a cum Lat. 20. 9. <i>Aust.</i>

Prolixiorum

Prolixiorum adeo supputationum proventu ita strictim exhibitis, restat, ut ordine quo sibi succedunt phenomena recenseam: Quod dum praeftitum eo, Lunæ simul motus, è Tabulis ad data tempora exquisitos, una eademque Synopsi adjungam, eo scil. fine ut ultro eam insipientibus Astrophilis, cum qualitates tum usus & commoda cujusque Apparentia, quatenus scil. vel quomodo Lunæ inserviat Motibus limandis, innotescant.

Temp. apparant. Londini.	Anim. de media.	Qu. Opt. aequata.	Arg. Latit.	Parall. Horiz.	Horiz. Semi-d.	Horosc. Oriens.	Altit. cent. D.	Arg. Paral.
d. h. "	s. o. "	s. o. "	s. o. "	" "	" "	gr. o. "	" "	" "
Jan. 4 10 19 39	7 27 42 57	6 5 40 46	4 12 57 54	" "	15 48	☾ 1 52 49 62 14		
13 39 38	7 27 31 51	6 7 27 4	4 15 4 53 58	23 15 47	m 6 59 0 84 24			
Jan. 7 18 34 23	9 11 24 7	7 17 1 50	6 0 32 5	53 42 14 3	☿ 5 24 51 80 59			
27 4 35 20	5 25 4 50	3 7 46 54	2 7 30 47 63	54 17 16	☿ 17 57 14 79 3			
Feb. 10 15 53 34	0 4 6 53	9 3 53 56	8 19 57 42 50	57 13 45	☿ 25 7 24 61 12			
25 12 13 22	6 18 2 54	3 6 32 5	3 8 38 30 63	40 17 12	m 28 22 36 45 19			
Mart. 2 13 5 30	9 6 53 30	5 23 23 24	6 1 23 19 56	18 15 13	☿ 11 40 0 84 17			
4 10 51 11	10 1 47 48	6 15 57 56	6 27 24 19 55	45 15 4	m 18 26 53 45 59			
26 13 33 11	7 20 37 58	3 15 4 57	4 17 32 26 60	54 16 28	☿ 5 15 22 63 43			
Mai. 2 15 15 12	11 24 31 40	6 14 6 35	8 25 57 45 52	42 14 15	☿ 22 6 9 78 54			
Jan. 17 23 57 19	8 0 50 0	1 14 48 28	5 16 53 31 57 55	15 38	☿ 5 35 40 34 45			
Jul. 2 13 5 58	2 10 57 21	7 3 52 50	11 17 15 20 55	53 15 8	☿ 12 22 11 82 9			
23 10 5 37	11 13 43 50	3 24 51 50	8 28 5 54 50	57 13 45	☿ 4 3 56 76 2			
28 14 15 3	1 21 19 15	5 22 44 33	11 1 15 45 3	47 14 33	☿ 21 9 55 50 27			
29 8 45 0	8 1 23 50	6 1 4 11	11 11 34 18 54	45 14 47	☿ 1 8 31 78 57			
Aug. 12 5 18 14	0 2 25 44	11 29 46 29	5 23 33 18 58	28 58 48	☿ 19 15 53 72 7			
25 14 47 23	1 27 25 5	5 4 35 9	11 10 27 3 55	18 14 57	☿ 15 0 45 52 26			
Sept. 8 16 6 7	8 1 0 31	11 4 39 24	5 27 47 2 59	45 16 9	☿ 8			
Oct. 19 7 37 37	1 21 57 17	3 11 27 51	11 13 35 54 52	29 14 11	☿ 1 19 13 57 50			
23 8 33 16	3 14 42 50	4 29 42 35	1 5 25 14 56	27 15 16	☿ 17 41 52 33 33			
28 10 3 50	5 20 51 19	7 5 22 59	3 22 47 2 62	8 16 48	☿ 7 55 4 53 48			
Nov. 1 17 44 7	7 17 17 20	9 2 26 2	5 22 53 37 51	16 16 33	m 1 50 47 56 59			
17 6 13 30	2 10 4 6	3 2 48 4	0 5 33 2 55	17 14 56	☿ 9 29 56 09 44			
Dec. 22 8 36 38	5 18 42 13	5 12 48 47	3 23 30 25 51	0 16 29	☿ 2 57 3 57 1			

Taceo de Phasi Lunæ in Umbris Terræ patientis, quippe de qua plus satis Astrologi. Interim hæc fideiiter supputata & indigitata Phenomena cum Illustrissima Regiæ Societati, tum, Ipsius Auspiciis, omnibus a'ibi Cælorum studiis impense commendo: quibus amplissimum Scientiæ incrementum, perennes studiorum profectus, Calumque imprimis his observationibus peragentis omnino propitium animatus excepto.